IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Wai Ming Choi	
Application No.:	10/822,440	Conf. #: 1434
Filed:	April 12, 2004	Group Art Unit: 1771
Entitled:	LOW DENSITY NONWOVEN GLASS FIBER WEB	Examiner: Andrew T. Piziali
Docket No.:	72545-83	

Certificate of Mailing (37 C.F.R. 1.8(a))

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March 14, 2008
Date of Signature and Mail Deposit

By: _____
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Commissioner for Patents
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§1.132 Declaration of Wai Ming Choi

I, Wai Ming Choi, residing at 1569 Commonwealth Ave, West Newton, Massachusetts, hereby declare as follows:

1. I am a Chief Scientist at Hollingsworth & Vose Company, and my responsibilities include high efficiency glass fiber media development. I have been working at Hollingsworth & Vose Company for 14 years and I have been developing glass filter media grades for over 10 years. I obtained a Master of Science degree in Chemical Engineering.

2. I have read the above-referenced application, and I fully understand the materials disclosed and claimed therein. The above-referenced patent application is directed to a nonwoven filter media formed from glass wool fibers having a gamma value of at least about 14.

3. I have read and fully understand WO 01/43850 entitled "Low Boron Containing

Microfiberglass Filtration Media" of Pierce (hereinafter "Pierce"), which is directed to nonwoven glass composites formed from an essentially boron free glass wool and an essentially boron free glass fiber.

4. I understand that the Examiner in the above-referenced application is asserting that the glass wool fiber disclosed in WO 01/43850 would inherently have a gamma value of at least 14 *if* the pH of the slurry used to form a filter media containing the low boron glass wool fibers was adjusted to a neutral or alkaline pH, as taught by U.S. Patent No. 6,291,552 to Dong or U.S. Patent No. 4,523,995 to Pall.

5. Example A below illustrates that the glass wool fibers and chopped glass fibers disclosed in Pierce will *not* produce a filter media having a gamma value of at least 14, without any pH adjusting agent. Example B below illustrates that, even if the pH of the slurry used to form the filter media is adjusted to a neutral or alkaline pH, as supposedly taught by Dong or Pall, the resulting filter media still will not have a gamma value of at least 14. Both Examples A and B were conducted using the low boron glass wool fibers and chopped glass fibers disclosed by Pierce. In particular, pg. 6, lines 5-9 of Pierce states that "'essentially boron free' glass wool fibers useful in the nonwoven composites of the of the present invention are available from Evanite Fiber Corporation, (1551 S.E. Crystal Lake Drive, Post Office Box E, Corvallis, Oregon 97339-0598, product numbers 800 series), Lauscha Fiber International, GmbH, (Dammweg 35, 98724 Lauscha Germany, Product A glass, also 105 Eastport Lane Summerville, South Carolina, 29483) . . . ." Examples A and B below use an Evanite 806 and 804 fiber from the 800 fiber series, and a Lauscha A04F-type A glass. The experiments were performed using the method disclosed at pg. 15, line to pg. 16, line 2 of Pierce (with modifications as indicated above to add a base)

Example A

Water having a pH of about 6.0 is added to a Waring blender (which is equivalent to a pulper on a paper machine). 1 ml of sulfuric acid (necessary for fiber dispersion) is added to the Waring blender. The pH is measured and recorded in Table A below as the "Blender pH." The following low boron glass wool fibers are added to the blender and dispersed into a slurry: 1.97

grams (23.8%) of OC Advantex having an average fiber length of 0.25 inches; 0.29 g (4.0%) of Evanite 804; 2.07 g (28.8%) of Lauscha A04F; 1.15 g (16%) of Evanite 806; and 1.97 g (27.4%) of Lauscha A26F. Water is added to a handsheet mold (equivalent to white water tank during papermaking process), and the pH is measured and recorded in Table A below as the "mold pH." The slurry from the blender is then added to the handsheet mold (equivalent to white water and fiber slurry being pumped into the headbox during the papermaking process), and the final pH of the slurry in the handsheet mold is measured and recorded in Table A below as the "Final pH in mold." The water from the handsheet mold is drained through a screen at the bottom of the mold. After the water is removed, a filter media is formed on top of the screen. The filter media is dried on a photo dryer to form a final filter media. The properties of each sample were tested and are shown in Table A below. All tests were conducted at an air velocity of 5.33 cm/sec with a DOP particle size of 0.3 microns.

Table A

	A1	A2
Blender pH	2.5	2.5
Mold pH	5.5	5.5
Final pH in mold	5.5	5.5
Basis Weight (gsm)	75.7	74.7
Caliper @10Kpa (mm)	0.438	0.441
Density (g/c.c.)	0.173	0.169
100P DOP (%pen)	0.018	0.024
Air Resistance	28.1	26.7
Gamma	13.33	13.56
Surface Area (m^2/g)	2.0054	1.8684

Example B

Water having a pH of about 6.0 is added to a Waring blender (which is equivalent to a pulper on a paper machine). 1 ml of sulfuric acid (necessary for fiber dispersion) is added to the Waring blender. The pH is measured and recorded in Table A below as the "Blender pH." The following low boron glass wool fibers are added to the blender and dispersed into a slurry: 1.97 grams (23.8%) of OC Advantex having an average fiber length of 0.25 inches; 0.29 g (4.0%) of Evanite 804; 2.07 g (28.8%) of Lauscha A04F; 1.15 g (16%) of Evanite 806; and 1.97 g (27.4%)

of Lauscha A26F. Water is added to a handsheet mold (equivalent to white water tank during papermaking process), and ammonium hydroxide is then added to the handsheet mold to adjust the pH. The amount of ammonium hydroxide added to the handsheet mold is recorded in Table B as "Amt. NH4OH added to mold," and the pH is measured and recorded in Table B below as the "mold pH." The slurry from the blender is then added to the handsheet mold (equivalent to white water and fiber slurry being pumped into the headbox during the papermaking process), and the final pH of the slurry in the handsheet mold is measured and recorded in Table B below as the "Final pH in mold." The water from the handsheet mold is drained through a screen at the bottom of the mold. After the water is removed, a filter media is formed on top of the screen. The filter media is dried on a photo dryer to form a final filter media. The properties of each sample were tested and are shown in Table B below. All tests were conducted at an air velocity of 5.33 cm/sec with a DOP particle size of 0.3 microns.

Table B

	B1	B2	B3	B4	B5	B6
Blender pH	2.5	2.5	2.5	2.5	.2.5	2.5
Amt NH_4OH added to mold	2.5 ml	2.5 ml	4 ml	4 ml	6 ml	6 ml
Mold pH	8.0	8.0	8.7	9.0	10.0	10.0
Final pH in mold	7.0	7.0	8.0	8.0	9.0	9.0
Basis Weight (gsm)	74.9	75.8	75.7	75.2	75.7	75.8
Caliper @10Kpa (mm)	0.473	0.477	0.582	0.495	0.600	0.538
Density (g/c.c.)	0.158	0.159	0.130	0.152	0.126	0.141
100P DOP (%pen)	0.016	0.013	0.020	0.012	0.023	0.016
Air Resistance	28.3	28.4	27.3	28.8	26.5	27.7
Gamma	13.41	13.68	13.55	13.61	13.73	13.70
Surface Area (m^2/g)	1.8931	1.8278	1.8319	1.8558	2.0461	1.9337

6. As illustrated above, neither Example A nor Example B produces a filter media having a gamma value that is at least 14. All gamma values are less than 14. While some of the results show a gamma as high as 13.73, this is a significant difference when referring to filtration efficiency. Accordingly, Pierce alone, or Pierce modified in view of Pall or Dong, will not inherently have the claimed gamma value.

7. I further declare that all statements made herein of my own knowledge are true

and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 3/14/2008

Wai Ming Choi

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